



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(MLT)-2022/B.Sc.(MLT)-2023/B.Sc.(MLT)-2024

Course Name – Biochemistry and Biophysics

Course Code - BMLTC202

(Semester II)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify which of the following dose not belong to omega-6-FA.
 - a) Arachidonic Acid
 - b) Gama Linolenic Acid
 - c) Linoleic Acid
 - d) Alpha Linolenic Acid.
- (ii) Most important in causing coronary artery disease (CAD) is _____ - select.
 - a) IDL
 - b) LDL
 - c) VLDL
 - d) Triglycerides
- (iii) Select which one of them is non essential amino acids.
 - a) Proline.
 - b) Phenylalanine.
 - c) Methionine.
 - d) Tryptophan.
- (iv) Select at the physiological pH which of these amino acids migrate slowest to the anode end.
 - a) Aspartate
 - b) Glycine
 - c) Valine
 - d) Lysine
- (v) Identify the the name of metabolic process which is common between human and bacteria.
 - a) Nitrogen fixation
 - b) Mucolipid formation
 - c) nonoxidative phoshrylation
 - d) Purine biosynthesis
- (vi) Findout the correct option that all are Ture about DNA structure, except.
 - a) All nucleotides are involed inlinkage
 - b) Attached by peptides bond
 - c) Anti-parallel structure
 - d) Bases are perpendicular to backbone of DNA
- (vii) Identify cobalt is a part of which one.

- a) Pyridoxine
c) Folic acid
- b) Cyanocobalamin
d) Thiamine
- (viii) Identify which all mammals cannot synthesize vitamin C?
a) Guinea pig
c) Monkey
b) Human
d) All of the these
- (ix) Vitamin B9 deficiency results in _____ - Select from the following.
a) Wernicke's encephalopathy
c) Subacute combined degeneration of spinal cord
b) Angular stomatitis
d) Megaloblastic anemia
- (x) Recognize the active form of Vitamin A.
a) Retinol, retinal and tetrahydrofolate
c) PABA, retinal and retinaldehyde
b) Retinal THF and retinoic acid
d) Retinol, retinal and retinoic acid
- (xi) Select which one is true regarding Michaelis-Menten hypothesis.
a) Rate of enzymatic reaction is independent of substrate concentration.
c) Enzyme - substrate complex formation is essential in enzymatic reaction.
b) Rate of non-enzymatic reaction is proportional to substrate concentration.
d) K_m is the enzyme-substrate complex association constant.
- (xii) Choose which are true about Triacylglycerols.
a) soluble in water
c) soluble in water at elevated temperature
b) insoluble in water
d) partially soluble in water
- (xiii) Identify the organ where chylomicrons are synthesized in _____.
a) blood
c) intestine
b) liver
d) pancreas
- (xiv) Predict the name which of the following sterol is not in the cell membrane of fungi?
a) Ergosterol
c) Sitosterol
b) Stigmasterol
d) Campesterol
- (xv) Which of the following polysaccharides is primarily responsible for lubricating joints and cushioning tissues?
a) Heparin
c) Dextran
b) Hyaluronic acid
d) Glycosaminoglycans

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Infer between the torsional angle and peptide bond angle. (3)
3. All aromatic amino acids are not polar explain. (3)
4. How does the structure of messenger RNA (mRNA) influence its stability and translation efficiency? (3)
5. Explain about enzyme activity. (3)
6. Calculate the pH of a solution with $[H^+] = 3.8 \times 10^{-10} M$. (3)
- OR
- Calculate the pH of a solution with $[H^+] = 0.025 M$. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Classify the different type of proteins in living system. (5)
8. Explain why LB plot is more accurate than MM-equation- give proper graphical representation. (5)
9. Among essential, saturated & unsaturated fatty acids which one is truly essential-Explain. (5)
10. Classify the different type of amino acids. (5)
11. Discuss the activation energy and explain how enzyme affect activation energy by a graphical representation. (5)
12. If the acidosis occur in human body how protein regulate the body pH-Explain. (5)

OR

Concentration of pH and the respiratory rate both are related to each other - Justify by proper explanation. (5)

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